

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Absorbing Power of the Human Skin.*—Dr. MURRAY THOMPSON, Lecturer on Chemistry, Edinburgh School of Medicine, relates (*Edinb. Med. Journal*, May, 1862) some experiments which he tried on his own person to ascertain the truth of the statements made as to the curative power of mineral water baths, depending on the absorption by the skin of certain salts and other substances which they hold in solution; and further, to ascertain whether certain substances applied in the form of ointments, &c. pass through the skin and reach the blood before they produce any beneficial effect.

His conclusions are, "that not only has absorption by the skin been greatly exaggerated, but that, in the case of substances in aqueous solution, it seems to be the exception, not the rule, for absorption to take place; and, in the case of ointments, etc., some substances so applied appear to be absorbed and others not. For instance, I have nowhere read any contradiction to the well-known statement that mercury is absorbed inunction. My own trials, though too few to lead me to an opposite conclusion with regard to iodine and iodide of potassium, certainly tend in that direction.

"As to the tincture of iodine, my many experiments with it compel me to say that it is seldom or never absorbed. As far, therefore, as the specific action of iodine is concerned, this remedy might be abandoned. At the same time, I am quite aware that painting with tincture of iodine is held to operate beneficially as a counter-irritant. I do not for a moment question this view of its use. My experiments lead me only to the conclusion that the iodine in it is not absorbed."

2. *Researches on the Influence of Culinary Salt and Coffee on the Metamorphosis of Tissue.*—Culinary salt, according to the researches of C. Voir, is a powerful stimulator of the metamorphosis of tissue; it increases, by means of its physical properties, the capillary circulation of fluids in the organism; it increases the oxidation of albumen, and through this the quantity of urea excreted. Culinary salt is also a true diuretic. In order to excrete the salt from the body, water is required; this water passes always through the kidneys (the only channel for the excretion of culinary salt in the dog), and is, if the supply of water from without is limited, abstracted from the tissues.

Voit's experiments with *coffee* on a dog led to the inference that coffee does not, as is usually assumed, diminish the metamorphosis of nitrogenous tissue, and the excretion of urea, but, on the contrary, rather increases these processes. On the whole, the dog appeared to be more lively after the use of coffee. The author made also experiments with *coffein* on frogs, and found it to cause, at first, increased irritability of the nervous system, a tendency to reflex-movements and to tetanic convulsions; later, however, phenomena of paralysis. The pupil

becomes dilated; the capillary vessels are filled with blood; the heart's contractions are at first increased, later reduced in frequency, they are arrested during the tetanic paroxysms. The author attributes the principal effects of coffee to its action on the nervous system, not to its influence on the tissue-change. The nervous system being rendered more susceptible, the same exciting cause produces a greater effect. Coffee thus refreshes, Voit thinks, the fatigued body, renders the lassitude less perceptible, and in this manner enables us to endure prolonged exertion. The experiments on the influence of *bodily exercise* (tread-wheel) on the tissue-change in the well-known dog lead to the unexpected result, that the excretion of urea was not at all, or only very slightly, increased by bodily labour. Voit infers, therefore, that muscular action does not cause increased decomposition of albuminous substances, while it is accompanied with a greater consumption of fat. As the decomposition of albumen is not the source of the production of force, connected with muscular contraction, Voit is inclined to look for it in the development of electricity.—*Brit. and For. Med. and Surg. Journ.*, July, 1862.

3. *Calorific and Vascular Nerves of the Sympathetic*.—M. CLAUDE BERNARD, in a paper, the first of a series to be presented to the Academy of Sciences, endeavours to demonstrate that the vascular and calorific nerves are special nerves to be topographically and physiologically distinguished from the ordinary motor nerves. Having opened the spinal canal in dogs, he divided as they left the cord all the origins of the sacro-lumbar plexus (sometimes on one side and sometimes on the other) which supplies sensation and motion to the hinder extremity. The limb became completely paralyzed, but no calorification or vascularization was observed, the temperature on this side often, indeed, diminishing. When only the posterior and anterior roots were divided, corresponding abolition of sensation or of motion occurred; but in neither case was there any vascularization or change of temperature in the limb. In a dog in which complete paralysis of the left hind leg was produced by division of the origins of the sacro-lumbar plexus, the sciatic nerve was afterwards divided. Its origin having been already divided, the subsequent section was not felt, and added nothing to the paralysis of motion and sensation that already existed; but vascular and calorific phenomena immediately followed, the temperature of the limb steadily rising until it was from 6° to 8° C. higher than that of the opposite one, and so continued until the death of the animal next day.

The experiment was repeated a great many times with exactly the same result. It is evident, therefore, that nerves influencing these functions must have become adjoined to the motor and sensitive nerves in the short interval between their issue from the canal and the point where the sciatic was divided. It is only the sympathetic, placed on the sides of the spinal column, which could thus become joined to these nerves; and M. Bernard in another experiment, destroyed the ganglion of the sympathetic and its filaments, which lay upon the side of the fifth and sixth lumbar vertebræ, leaving the nerves of the sacro-lumbar plexus entirely intact. An excess of temperature in the limb was immediately observed, and during the three days the animal lived, the paw of the side operated upon was from 5° to 8° hotter than the other—no paralysis whatever being present. The conclusion to be drawn is that there are three distinct descriptions of nervous influence—1. The sensitive, due to the posterior roots of the sacro-lumbar plexus; 2. The motor or muscular, belonging to the anterior roots; and 3. The vascular and calorific, due to the sympathetic.—*Med. Times and Gaz.*, Aug. 23, 1862, from *Gaz. des Hôp.*, No. 94.

MATERIA MEDICA AND PHARMACY.

4. *Is Alcohol Food?*—Dr. THOMAS INMAN, of Liverpool, read an interesting paper on this subject before the British Medical Association at its late meeting in London.

The author first devoted a few words to definition, stating that by "alcohol"